

WHAT WE CLAIM IS:

1. An oilseed of the species *Brassica juncea* bearing an endogenous oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated fatty acid content of less than 7.1% by weight.
2. The oilseed of Claim 1, that leaves a meal after extraction of the endogenous oil from the seeds, said meal containing less than 30 μ mole of aliphatic glucosinolates per gram.
3. The oilseed of Claim 2, wherein said meal contains less than 3 μ mole of allyl glucosinolate per gram of meal.
4. The oilseed of Claim 1, wherein the total saturated fatty acid content is less than 6.5% by weight. 2990 - 1.1% cont
5. The oilseed of Claim 1, derived by crossing a high oleic acid *B. juncea* line and a low saturated fatty acid *B. juncea* line.
6. The oilseed of Claim 1, having a genome that includes both *B. juncea* lines J90-3450 and J90-4316 in its lineage.
7. The oilseed of Claim 1, derived by crossing *B. juncea* lines J90-3450 and J90-4316.
8. An oilseed of *B. juncea* line J96D-2250 (ATCC Accession No. 203101). ✓
9. An oilseed of *B. juncea* line J96D-2990 (ATCC Accession No. 203102). → See app
10. An oilseed of *B. juncea* line J96D-0758 (ATCC Accession No. 203103). ✓

11. The oilseed of Claim 1, wherein the oleic acid content is at least 60% by weight.
12. A *B. juncea* seed containing an endogenous oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated acid content of less than 7.1% by weight, wherein genetic determinants for said endogenous oil are those obtainable by crossing a first parent designated J90-3450 with a second parent designated J90-4316.
13. A genetically stable plant of the species *B. juncea* that develops mature seeds bearing an endogenous oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated acid content of less than 7.1% by weight; or a part or precursor of said plant.
14. The plant of Claim 13, that leaves a meal after extraction of the endogenous oil from the seeds, said meal containing less than 30 μ mole of glucosinolates per gram.
15. The plant of Claim 14, wherein said meal contains less than 3 μ mole of allyl glucosinolates per gram.
16. The plant of Claim 13, having a genome that includes a high oleic acid *B. juncea* line and a low saturated fatty acid *B. juncea* line in its lineage.
17. The plant of Claim 13, derived by crossing a high oleic acid *B. juncea* line and a low saturated fatty acid *B. juncea* line.
18. The plant of Claim 13, having a genome that includes both *B. juncea* lines J90-3450 and J90-4316 in its lineage.

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19. The plant of Claim 18, derived by crossing *B. juncea* lines J90-3450 and J90-4316.

20. A plant grown from an oilseed of *B. juncea* line J96D-2250 (ATCC Accession No. 203101), or having the physiological characteristics of such a plant.

21. A plant grown from an oilseed of *B. juncea* line J96D-2990 (ATCC Accession No. 203102), or having the physiological characteristics of such a plant.

22. A plant grown from an oilseed of *B. juncea* line J96D-0758 (ATCC Accession No. 203103), or having the physiological characteristics of such a plant.

23. The plant of Claim 13, wherein the oil has an oleic acid content of at least 60% by weight and a total saturated acid content of less than 6.5% by weight. 2990

24. A seed oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated acid content of less than 7.1% by weight, said oil having been extracted from an oilseed as defined in Claim 1.

25. A process of producing a genetically stable *B. juncea* plant that develops mature seeds bearing an endogenous oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated acid content of less than 7.1% by weight, said process comprising the steps of:
crossing a line of *B. juncea* having a lineage that includes J90-3450 with a *B. juncea* line having a lineage that includes J90-4316 to form F1 progeny;

propagating said progeny by a method selected from the group consisting of self-pollination, and development of doubled haploid plants;

and, from resulting progeny, selecting genetically stable plants that generate seeds containing an endogenous oil that has an oleic acid value of more than 55% by weight, a linoleic value of less than 25% by weight, a linolenic acid value of less than 14% by weight, an erucic acid value of less than 1% by weight, a palmitic acid value of less than 6% by weight, a stearic acid content of less than 2.5% by weight and a total saturate content of less than 7.1% by weight.

26. A process of producing a genetically stable *B. juncea* plant that develops mature seeds bearing an endogenous oil having an oleic acid content of at least 55% by weight, a linoleic acid content of less than 25% by weight, a linolenic acid content of less than 14% by weight, a erucic acid content of less than 1% by weight, a palmitic acid content of less than 6% by weight, a stearic acid content of less than 2.5% by weight, and a total saturated acid content of less than 6.5% by weight, said process comprising the steps of:

crossing a line of *B. juncea* having a lineage that includes J90-3450 with a *B. juncea* line having a lineage that includes J90-4316 to form F1 progeny;

propagating said progeny by a method selected from the group consisting of either self-pollination or development of doubled haploid plants;

from resulting progeny, selecting genetically stable plants that generate seeds containing an endogenous oil that has an oleic acid value of more than 55% by weight, a linoleic value of less than 25% by weight, a linolenic acid value of less than 14% by weight, an erucic acid value of less than 1% by weight, a palmitic acid value of less than 6% by weight, a stearic acid content of less than 2.5% by weight and a total saturate content of less than 7.1% by weight;

and, utilizing mutagenesis to produce a plant with a low saturated fat content, crossing the low saturated plant or its progeny with a plant with > 55% by weight oleic acid to produce progeny with an oleic acid value of more than 55% by weight, a linoleic value of less than 25% by weight, a linolenic acid value of less than 14% by weight, an erucic acid value of less than 1% by weight, a palmitic acid value of less than 6% by

weight, a stearic acid content of less than 2.5% by weight and a total saturate content of less than 6.5% by weight.

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